BY ORDER OF THE COMMANDER
482D FIGHTER WING

482D FIGHTER WING INSTRUCTION
91-212

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Safety

BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH) REDUCTION PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements and expands guidance in Air Force Policy Directive (AFDP) 91-2, *Safety Program*, , AFI 91-202, *The United States Air Force (USAF) Mishap Prevention Program*, and Air Force Pamphlet (AFPAM) 21-212, *Bird Wildlife Aircraft Strike Hazard (BASH) Management Program*, dated 1 February 2004. This instruction provides a base program designed to minimize aircraft exposure to potentially hazardous bird/wildlife strikes and control bird populations which could jeopardize aircraft at Homestead Air Reserve Base (HARB). Tasked organizations will develop checklists, etc. as required to fulfill assigned responsibilities. This instruction will be reviewed annually and require on-site reviews every 36 months, as appropriate, by tasked organizations. . Refer recommended changes to and questions about this publication to the Office of Primary Responsibility (OPR) using Air Force (AF) Form 847, *Recommendation for Change of Publication;* route AF Form 847 from the field through the appropriate functional's chain of command. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW the Air Force Records Disposition Schedule (RDS) located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**.

Chapter 1

CONDITIONS FOR EXECUTION

1.1. Conditions for Execution: This Instruction is based on hazards from both resident and seasonal bird populations. Implementation of specific portions of the Instruction is continuous, while other portions will be implemented as required due to bird activity and weather conditions.

1.2. OPERATIONS TO BE CONDUCTED:

1.2.1. Specific Operations Include:

1.2.1.1. Procedures for reporting hazardous bird activity, alerting pilots, notifying key agencies, dispersing birds through non-lethal and/or lethal means, and if necessary, limiting or discontinuing flying operations.

1.2.1.2. Provisions to disseminate information to all assigned and transient pilots for specific bird hazards, and procedures to minimize exposure.

1.2.1.3. Procedures to eliminate or reduce environmental conditions that attract birds to the airfield and Miami-Dade County Landfill (M-DCLF).

1.2.1.4. Procedures to disperse birds on the airfield and the M-DCLF.

1.2.1.5. The sustainment of a Bird Hazard Working Group (BHWG).

1.3. Tasked Organizations: As listed in Chapter 2.

1.4. Supporting Plans: None required.

1.5. Key Assumption: Bird activity poses a significant threat to aircraft flight operations.

1.6. Time to Commerce Operation: Prior to and during normal flight operations including aircraft deployment and contingency operations. Specific operations commence whenever Bird Watch Condition (BWC) MODERATE OR SEVERE is declared.

Chapter 2

GENERAL

2.1. Basic Instructions: A bird/wildlife aircraft strike hazard exists at HARB and its vicinity due to resident and migratory bird species and other wildlife. Daily and seasonal bird movements create various hazardous conditions. This Instruction establishes procedures to minimize bird strikes at HARB and local flying areas. No single solution exists to the BASH risk. The risk must be managed from every angle. A variety of techniques and organizations are involved in administering the program and managing the risk. Specifically, this Instruction is designed to:

2.1.1. Establish procedures to identify and avoid high risk situations, and to aid supervisors and pilots in altering/discontinuing flying operations when required.

2.1.2. Help disseminate information to all assigned and transient pilots on bird hazards and procedures for bird avoidance.

2.1.3. Establish guidelines to decrease airfield attractiveness to birds.

2.1.4. Provide procedures for dispersing birds when they occur on the airfield or at the Miami-Dade County Land Fill (M-DCLF).

2.1.5. Sustain a Bird Hazard Working Group (BHWG) and designate responsibilities to its members.

2.1.6. Compile seasonal/yearly data to track bird concentration patterns and help make educated decisions regarding the flying schedule.

2.2. Airfield and Local Area. Homestead Air Reserve Base is located on 1943 acres in southeast Miami-Dade County, Florida, approximately three miles from the Biscayne Bay Seashore and wholly within the confines of the South Miami-Dade Wildlife Conservation area. The average elevation of this area is six feet above sea level. Several features of the surrounding area are conducive to bird habitation. The Base is bordered by large tracts of farmland. There is a large Miami-Dade County landfill located approximately five miles north of the base. Birds are attracted to landfills just as they are to any source of food. Homestead Air Reserve Base is drained by several man-made canals and drainage ditches. These canals and drainage ditches provide an excellent environment for water birds.

2.3. Area surrounding the runway complex. The area surrounding the runway complex consists of a mix of Florida grasses which is carefully maintained by a civilian contractor. The infield area between the taxiways and runway remains attractive to wildlife in search of food, shelter, and water. Some parts are designated as wetlands and maintained only periodically.

2.4. Low level routes. 482d Fighter Wing (482 FW) aircraft are restricted from using the local overland low-level flying routes and areas. The 482 FW weighed the training benefits of low level flying against the risk to its pilots and aircraft and decided to discontinue low level operations. This decision to terminate low-level flying can be rescinded any time mission requirements change. References to low level activities will remain in this publication for possible future use. When low level procedures were in effect HARB aircraft used southern Florida as the primary low-level flying area. This area has many features which attract a variety

of birds from migratory waterfowl and unnamed species, to shore birds and indigenous soaring birds. The two most hazardous species are migratory waterfowl and raptors (hawks, black vultures, turkey vultures). Specific hazards are outlined in Chapter 4.

2.5. Avon Park Air Force Range. Avon Park occupies 106,110 acres of land in Polk and Highlands counties in central Florida. Most of the area is typically southern Florida Flatwoods comprised of nearly level sandy flatlands with small swamps and wet grasslands. The terrain in and around Avon Park provides an abundant variety of habitats for birds that are hazardous to aircraft. Specifics are outlined in Chapter 4.

2.6. Execution:

2.6.1. Reducing the bird strike hazard at HARB requires a cooperative effort between several base organizations. The OPR for coordinating this Instruction is 482 FW/ Safety Office (482 FW/SE).

2.6.2. Bird Hazard Working Group (BHWG):

2.6.2.1. Function. Collects, compiles, and reviews data on bird strikes; identifies and recommends actions to reduce hazards. Recommends changes in operational procedures. Prepares informational programs for pilots. Assists the operations group commander by acting as a point of contact for off-base BASH issues.

2.6.2.2. Authority. The BHWG submits all recommendations to the operational commander for approval. Implementation is through normal chain of command.

2.6.2.3. Composition. The chairperson is the Vice Wing Commander. As a minimum, the group will consist of a representative from Flight Safety, Aircraft Maintenance, Civil Engineering, Airfield Management, tenant units, and representatives from other tasked organizations (Chapter 2) as required.

2.6.2.4. Meeting Schedule. The BHWG will meet quarterly as part of the Combined Environmental Safety and Occupational Health (ESOH) Council during Phase I (April through October) normal bird activity. HARB has designated the months of November through March as Phase II. Phase II normally indicates periods of increased bird activity due to seasonal migrations. Historically, migratory activities that HARB experiences are not consistent from one year to another. During one given year the base might experience migratory birds and then not again for several more years. With this information in mind, during Phase II months the 482 FW/SE office will meet weekly with the biologists assigned to the base and discuss any ongoing trends. Additionally, the Wing Safety office will run the Phase II Migratory Bird Hazard ORM Checklist. If there is unusual bird activity or trending the Wing Safety office will convene a meeting of the BHWG to recommend implementing Phase II procedures. If no increased activity exists the BHWG will stay on a quarterly meeting schedule. The USDA Biologists will publish a monthly report throughout the year to document all activities and trends.

Chapter 3

TASK ORGANIZATIONS

3.1. 482FW/CV.

3.2. 482FW/OG.

3.3. 93FS/CC.

3.4. 482FW/SE.

3.5. 482 OG/OGV.

3.6. 482FW/SEF.

3.7. 482MSG/BCE/CE.

3.8. 482OSF/OSA/OSAA.

3.9. 482OG/SOF.

3.10. 482FW Biologist.

3.11. 482OSF/OSAT.

3.12. Tenants Det 1, 125FW/CC and Miami Air and Marine Branch/CC.

3.13. Avon Park Range.

3.14. Tasks and Responsibilities:

3.14.1. Vice Wing Commander

3.14.1.1. Chairs BHWG meetings

3.14.1.2. Approves recommendations of BHWG

3.14.2. Operations Group Commander

3.14.2.1. Oversees the Supervisor of Flying (SOF) Program which in turn declares, disseminates, and terminates bird watch conditions at HARB and the local training areas.

3.14.2.2. Issues specific procedural guidance for pilots and the SOF for each bird watch condition.

3.14.2.3. Authority for granting or denying permission for any flying activity that is outside the normally approved procedures for a particular Bird Watch Condition.

3.14.2.4. Issues implementation procedures and actions required by the Command Post in support of this Instruction.

3.14.2.5. Makes operational changes to avoid areas and times of known hazardous bird concentrations, mission permitting. Considers the following during periods of increased bird activity:

3.14.2.5.1. Raising pattern altitude.

3.14.2.5.2. Changing pattern direction.

3.14.2.5.3. Avoiding takeoffs/landings within 1 hour of dawn/dusk.

3.14.2.5.4. Limiting or prohibiting formation takeoffs and landing.

3.14.2.5.5. Utilizing trail departures with rejoin altitudes greater than 3000 feet AGL.

3.14.2.5.6. Rescheduling local training to different areas.

3.14.2.5.7. Raising altitude en route to low-level or training areas.

3.14.2.5.8. Limiting time on low-level routes to the minimum training requirements.

3.14.2.5.9. Selecting low-level routes or training areas based on bird hazard data from the US Fish and Wildlife Service or the computerized Bird Avoidance Model (BAM).

3.14.2.5.10. Splitting formations during recovery.

3.14.2.5.11. Making full-stop landings.

3.15. 93d Fighter Squadron Commander:

3.15.1. Ensures pilots participate in the BASH reduction program by adhering to the directives contained in this Instruction. Ensures that pilots promptly report all bird strikes (Form 853), and hazardous BASH conditions IAW this directive.

3.16. Not Used.

3.17. Chief, Safety, 482 FW.

3.17.1. Monitors base-wide compliance with BASH Program and ensures all bird-aircraft strikes and hazards are reported in the Air Force Safety Automated System (AFSAS) database per AFI 91-202, AFP 91-212, and Chapter 6 of this Instruction.

3.17.2. Reports on BASH issues and includes BHWG recommendations and actions in the agenda and minutes of the wing's quarterly ESOH Council meeting.

3.17.3. Plans and conducts the BHWG for the Chairperson. Disseminates BASH data to the BHWG.

3.17.4. Provides the BHWG with the current BASH guidance from HHQ, the BASH team, the contracted BASH service, and other outside agencies. Additionally, presents Bird Hazard Condition trend data collected from the ATC tower and the BASH contractor biologist. This data is used by the BHWG to evaluate or modify operational procedures.

3.17.5. Supports and administers the BASH contract.

3.17.6. Briefs pilots monthly on bird strikes affecting unit aircraft.

3.18. Chief, Wing Standardization/Evaluation:

3.18.1. Reviews, with Operations Group Commander, all proposed new low-level routes and training areas or changes to existing routes/areas for BASH potential.

3.18.2. Monitors flight briefings and debriefs to ensure bird strike avoidance is discussed when appropriate, and that Avon Park bird avoidance procedures are adhered to.

3.19. Flying Safety Officer:

3.19.1. Ensures pilots promptly report all bird strikes and hazardous conditions per this directive.

3.19.2. In the absence of the Base Biologist, logs all bird strikes affecting HARB aircraft in the AFSAS database.

3.19.3. Ensure that the current bird activity data is available and briefed for each applicable planned phase of flight, and educates pilots on the use of the Bird Avoidance Model (BAM) and Avian Hazard Advisory System (AHAS) computer programs.

3.19.4. Ensure adequate supplies of BASH report forms (Form 853) are readily available for pilots. The blank forms are in the FCIF volume V (Flight Safety) located at the 93d Fighter Squadron (93 FS) Operations Desk, or at maintenance debrief.

3.19.5. Briefs pilots on seasonal bird hazards, specifically during Phase II periods, contingencies and after-dark operations. Movies, articles, cross tells and other information will be used as appropriate to maintain awareness.

3.20. Base Civil Engineer:

3.20.1. Provides natural resources representation to the BHWG to monitor and advise the group of relevant environmental factors.

3.20.2. Develops procedures for removal or control of bird attractants.

3.20.3. Initiates surveys and writes environmental impact assessments and statements as required.

3.20.4. Corrects environmental conditions that increase BASH potential.

3.20.5. Uses land management practices that reduce BASH potential.

3.20.6. Modifies airfield habitat consistent with runway lateral and approach zone management criteria. Accomplishes habitat reduction to reduce the bird risk beyond the 1000 feet distance criterion.

3.20.7. Managing Grass Height. Maintains a uniform grass height between 7 and 14 inches. Determine mowing frequency as needed to maintain height requirements. Coordinate mowing with periods of low flight activity. Cut grass before it goes to seed to discourage seed-eating birds from utilizing the airfield. Proper grass height discourages flocking species from entering the airfield because reduced visibility disrupts inter-flock communication and flock integrity and also prevents predator detection. As a rule, do not permit grass to exceed 14 inches as high grass will attract some bird species and rodents which, in turn, attract raptors (birds of prey).

3.20.8. Airfields with a variety of grass species may have a fast-growing strain which reaches 14 inches sooner than the rest of the airfield. Mow when the average grass height exceeds 14 inches. Mowing should start at the runway edge or as close as possible. Mow parallel to the runway and work toward the infield to avoid scaring birds towards the runway. Obtain assistance in herbicide selection for weed control, appropriate grass seed selection, fertilization, and erosion control vegetation from the US Soil Conservation Service or the Agricultural Extension Service.

3.20.9. Controlling broad-leaf weeds. Keep broad-leaf weeds to a minimum on the airfield. Apply herbicides, as necessary, to achieve this. Broad-leaf weeds attract a variety of birds, may produce seeds or berries, and may limit grass growth.

3.21. Chief, Airfield Management:

3.21.1. The authority to declare bird watch conditions is vested with the SOF during normal flight operations. During all other periods, the Chief of Airfield Management, or their designated representative, is the declaring authority.

3.21.2. The Chief of Airfield Management bases the declaration of a bird watch condition on:

3.21.2.1. Observations made by the base or BASH contractor.

3.21.2.2. Information relayed by airborne aircraft or other HARB personnel, familiar with the BASH program, working on the airfield.

3.21.2.3. Observations made and relayed to base operations by HARB tower, End of Runway crews, and Transient Alert personnel.

3.21.3. The Chief of Airfield Management should appoint a bird scare team. This team is activated at times when birds on the airfield create hazardous conditions, but as a minimum when Bird Watch Condition "Severe" is declared. The bird scare team will, as a minimum, have immediate access to bioacoustics and pyrotechnic equipment for bird dispersal. This equipment must be stored in an approved location where access is readily available.

3.22. Supervisor of Flying (SOF):

3.22.1. Authority to declare bird watch conditions is vested with the SOF during normal flight operations. The SOF considers inputs from agencies below, but the Bird Hazard Condition declaration, responsibility, and authority rests with the SOF. The SOF bases the declaration of a bird watch condition on:

3.22.1.1. Observations made by the base or BASH contractor.

3.22.1.2. Information relayed by airborne aircraft.

3.22.1.3. Observations made, and relayed to base operations by HARB tower, End of Runway crews, and Transient Alert personnel.

3.22.2. Implements flying procedures in response to elevations in the Bird Watch Condition. Informs the OG commander and the Chief of Airfield Management of Bird Severe declaration and includes the status of any airborne HARB aircraft.

3.22.3. Fills out the End of Tour Spot Inspection Report located on the computer at the SOF station in the tower. The changes in BWC are data based to help in tracking efforts.

3.23. Contracted BASH service providerwill:

3.23.1. Monitor the airfield during all 482 FW day flying periods and minimize the bird hazard using techniques defined in this publication. Additionally, during times of the year when birds are active at night (migratory swallows) birdman will cover all night flying periods.

3.23.2. Will request assistance from the bird scare team through the Chief of Airfield Management when conditions are beyond the birdman's ability to control the bird hazard.

3.23.3. Request access to the airfield from the Chief of ATC or their representative in the tower via the Ground Control frequency and inform the tower when vacating the airfield environment.

3.23.4. Maintains a current bird activity map for HARB.

3.23.5. Briefs pertinent information gained from conducting his job to the BHWG and the quarterly EOSH Council. Additionally, he should provide any additional information on migratory, local, and seasonal bird activities through contact Audubon Society, local ornithologists, and other agencies.

3.23.6. Compiles daily BWC data to help plan the flying activities at HARB.

3.23.7. Implements many various techniques for decreasing the bird threat to HARB aircraft.

3.23.7.1. Bioacoustics. Bioacoustics is taped distress or alarm calls of actual birds. The equipment required to adequately project these calls includes a cassette tape deck mounted in a vehicle and a speaker mounted on its roof. Special care must be taken to play the tape in short intervals to prevent habituation by the birds. Play the tape for 20-30 seconds and then pause briefly. Repeat the procedure several times if necessary. The birds should respond by taking flight or becoming alert. These calls are effective for gulls, blackbirds, starlings, cowbirds, grackles, ravens, crows, and some shorebirds. Pyrotechnics should be used in conjunction with bioacoustics to enhance complete dispersal.

3.23.7.2. Pyrotechnics. Pyrotechnics are 12- gauge (or similar) scare cartridges that produce a secondary explosion to scare the birds from the area. The scare cartridges are launched from either a shotgun or a pyrotechnic pistol. Pyrotechnics are effective for dispersing most bird species.

3.23.7.3. Propane Cannons. Propane cannons may also be used. These devices should be operated, especially at dawn and dusk, as birds come in to feed or roost. Cannons must be relocated frequently to avoid habituation problems. These devices are very effective on waterfowl, pheasants, and other game birds and can also be used for gulls and blackbirds.

3.23.7.4. Depredation. Birds must be killed occasionally as a reinforcement of other methods. Domestic pigeons, European starlings, and house sparrows can be killed without a permit. Most other species require federal and state permits. When Airfield Management is involved in any depredation action they shall coordinate through the contractor for permits and direction in this area.

3.23.7.5. Other Devices. Ingenuity is encouraged in the bird scare program. Other devices may be used. Radio-controlled model aircraft, hawk kites, model birds in distressed positions, falconry, etc., may all be considered based on availability and problem bird species. Contact the BASH team at HQAFSC/SEFW, 9700 Ave, G. SE, Bldg 24499, Kirtland AFB, NM 87117-5670, for advice in this area.

3.23.8. Ineffective Methods. Ultrasound, rubber snakes, stuffed owls, rotating/ flashing lights, loud music, and other such devices have not proven effective and should not be used.

3.23.9. Conducts daily airfield and M-DCLF surveys. Dead birds should be removed and routed through the Wing Safety office for identification by the Smithsonian Institute.

3.23.10. Tracks and collects daily and seasonal data on BASH low, moderate, and severe conditions for BASH prevention purposes. The data can be obtained from the Chief of ATC or their representative in the tower, and from the Supervisor of Flying (End of Tour spot inspection forms). This data will help the 482 FW identify hazardous trends and modify the flying program if required.

3.23.11. Tracks bird numbers to establish seasonal migration levels that affect the BASH program.

3.23.12. Works with the Flying Safety Officer logging all bird strikes in the Air Force, AFSAS database.

3.23.13. Coordinates with pilots and maintenance personnel for collecting of non-fleshy remains after strikes. Sends any salvaged bird strike remains to the Smithsonian Institution at the address below for identification.

Figure 3.1. Smithsonian Institution Natural History Bldg.

Smithsonian Institution, Natural History Bldg.
Division of Birds, ATTN: Carla Dove
P.O. Box 37012, E610, MRC 116
10th and Constitution Ave NW
Washington, D.C. 20013-7012
(202) 357-2334

3.23.13.1. Provide 482 FW/SE office with a monthly written report on the bird activities and trends for HARB.

3.24. Chief, Air Traffic Control:

3.24.1. Chief of ATC or their designated representative in the tower reports observed bird activity and recommended bird watch condition to the SOF or Airfield Management/Bash contractor as appropriate. During periods when HARB aircraft are not flying ATC has the authority to raise the BWC status, but not lower it without Airfield Management concurrence.

3.24.2. Issues bird watch advisories to pilots as required.

3.24.3. Provides Contractor/Airfield Management prompt access to the runway under bird watch condition MODERATE or SEVERE.

3.25. Tenant Units:

3.25.1. Det 1, 125 FW and Miami Air and Marine Branch will provide a representative to the BHWG and support the base BASH program as appropriate. Responsibilities during various BWCs are outlined in Chapter 6.

3.26. Avon Park Range (R2901):

3.26.1. Avon Park Range uses the AFPAM 91-212 terminology for making bird watch condition calls on the range area. If other than low, expect the Range Control Officer (RCO) to advise the flight of the current bird condition. For example, "Mako 1, bird condition moderate at Avon Aux, or bird condition moderate in the South extension as reported by Shark 1, 15 minutes ago". The RCO has the overriding authority to declare BWCs for the auxiliary (AUX) Field and Bombing Ranges due to his proximity to the sites.

Chapter 4

WILDLIFE

4.1. Wildlife. This chapter provides a summary of the bird strike hazards and recommendations for reducing each hazard to flight operations. A brief description of birds commonly involved in collisions with aircraft, and how each method of control or avoidance is to be employed is provided. Each control measure will have a corresponding tasked organization in the basic Instruction.

4.2. Specific Hazards for HARB:

4.2.1. Loons, Grebes, Pelicans, Cormorants, Mergansers. These are fish-eating birds. Control is best accomplished by removing fish-producing ponds near the airfield. Removal of the food source is not always possible, and pyrotechnics can be used to effectively frighten the birds from the area. Avoid flying at sunrise and sunset when large flocks, often in formation, can be found flying to and from feeding areas.

4.2.2. Long-legged Waders (Herons, Egrets, Ibises, Storks). Most of these species are attracted to water where they feed on fish, amphibians, reptiles, and arthropods. Control is best accomplished by eliminating the food sources. Steepening the sides of ditches and ponds and removing emergent vegetation will drastically reduce accessibility to food sources. Use pyrotechnics to disperse any birds that remain after habitat modification.

4.2.3. Cattle Egrets. These birds have different feeding habits than their relatives, preferring open fields where they primarily feed on insects. They frequently follow mowers for the insects which are stirred up. When possible mow during non-flying hours when Cattle Egrets are present. Maintain grass height between 7 to 14 inches. Additionally, periodic pesticide application may be necessary for insect control. Eliminate roost sites on or near the base by removing or thinning roost trees and brush, and dispersing the birds each evening with pyrotechnics.

4.2.4. Migrating waterfowl. Migrating waterfowl are particularly dangerous to flight safety due to the large numbers, size, and generally higher altitude of the birds. Large flocks of waterfowl travel along traditional flyways to their breeding and wintering grounds during spring and fall. The flocks may stop along the route awaiting favorable weather conditions to continue. Migrating birds are most active from sunset through midnight, with numbers decreasing in the early morning hours. October and November are the most hazardous months. Avoid flying during the evening hours if possible. Obtain Bird Avoidance Model (BAM) data from the BASH website for information and planning purposes for comparing low level routes. Wintering concentration areas should be avoided.

4.2.5. Raptors (Hawks, Falcons, Kites, Eagles, Vultures). These birds can be particularly hazardous to aircraft because of their size and widespread distribution over bases and low level areas. Raptors (particularly vultures) use thermals to their advantage to search for prey. These birds become active during mid-morning and remain aloft until late afternoon. Avoid areas with thermal generating terrain such as ridge lines, rolling hills, and near water. Landfills are particularly attractive to soaring vultures. Our neighborhood landfill is only 2.1 NM north of the approach end of Runway 23. Utilization of a second Base Contractor may significantly reduce the threat that the landfill poses to the airfield environment. In the fall,

raptors migrate by day to areas of heavy winter concentrations in the southern states and throughout Central America. These birds can be controlled by removing dead animals on the airfield, proper management of landfills, rodent control on airfields, and removal of dead trees and other perching sites on the airfield. Use pyrotechnics to frighten raptors from the airfield.

4.2.6. Cranes. These large birds are most hazardous during migrating periods, particularly in the fall when many thousands of birds may be concentrated in a small area. Avoid flying at dawn and dusk in areas of known concentration. Use pyrotechnics on the airfield to disperse these birds.

4.2.7. Sandpipers/Shorebirds. The most significant hazard from these birds occurs when large numbers flock in tight groups, particularly during migration and along coastlines. Many of the upland species such as upland sandpipers and buff-breasted sandpipers may nest on airfields in spring and early summer. Other species such as killdeer are quite adept at avoiding aircraft and do not pose a significant hazard. Flocks in coastal areas can be hazardous and should be avoided. To control these birds, observe proper grass height management. Eliminate water in puddles and steepen ditch banks to limit access to these birds. Use pyrotechnics for all species, and some respond well to bioacoustics.

4.2.8. Gulls. These birds represent the most significant hazard to aircraft worldwide. Due to their omnivorous feeding habits and preference for flat, open areas to rest, they are commonly found on airfields. Gulls are most active just after sunrise and before sunset as they move to and from feeding areas. Improperly operated landfills are a significant source of attraction for gulls and should not be allowed in the airfield vicinity. Maintain grass height between 7 and 14 inches. This is critical in reducing gull numbers. Even with this in effect, gulls may inhabit the airfield, particularly during inclement weather. Persistent harassment using pyrotechnics and bioacoustics is necessary to discourage these birds. Occasionally, use live ammunition to reinforce these techniques. Consider other techniques such as gas cannons, model gulls, radio-controlled model aircraft, and even falconry if available and cost effective. Poisoning of earthworms and insects (especially grasshoppers) may be accomplished if these invertebrates are found to attract gulls. Do not allow these birds to establish a habit of using the airfield to feed, breed, or rest.

4.2.9. Terns. These are fish-eating, gull-like birds common in coastal areas and on some major river systems and lakes. Avoid flying near areas where these birds may be active, such as nesting colonies or piers in coastal areas. Remove the food source or eliminate the fish containing ponds if these birds pose a significant hazard.

4.2.10. Pigeons and Doves. These birds are seed-eaters and are attracted to seed-producing weeds, grasses, and shrubs. Open areas or bare spots are attractive as resting or feeding sites. Pyrotechnics can be effective in frightening these birds. Proper grass-height management, irrigation, and mowing before grass goes to seed will limit the number of pigeons and doves on the field. Pigeons frequently occur in structures such as hangars. Netting, shooting, trapping, poisons baiting, and especially toxic bird perches (such as Rid-A-Bird) can drastically reduce their numbers in these structures.

4.2.11. Owls. Most owls are nocturnal and attracted to rodents as a food source. Rodent control may be necessary on the airfield; proper management of airfield grass will limit their

numbers. Remove perch sites such as unnecessary fence posts and dead trees to limit the number of owls. Avoid over flying landfills at night to reduce hazards from owls.

4.2.12. Goatsuckers (Nighthawks, Whippoorwills, etc.). These birds are active, particularly at sunset when insects are abundant. Little can be done to limit their numbers other than insect control. Avoid flying at times when these birds are abundant, particularly near lakes, streams, or other areas with large insect populations.

4.2.13. .Flycatchers. These birds are present on airfields to feed on insects. Strikes are infrequent, but should not be overlooked. Control is best accomplished by controlling insects and removing perch sites such as fence posts, tree limbs, and bushes.

4.2.14. Crows and Ravens. These omnivorous birds are common in open areas and around landfills. These birds may occur in large flocks, particularly at sunset as they return to roost sites. Proper grass -height management will reduce population numbers. Remove any known roost sites or thin individual roost trees. Operate landfills in a manner to discourage these birds. Use bioacoustics and pyrotechnics to frighten these birds if they occur on the field.

4.2.15. Blackbirds, Grackles, Cowbirds, and Starlings. These birds can be particularly hazardous because they frequently occur in huge flocks, sometimes in the millions. Blackbirds and starlings are attracted to flat, open areas to feed, rest, or stage/pre-roost. Maintain grass height between 7 and 14 inches to best reduce airfield blackbird and starling numbers. Do not allow seed producing plants to grow on the airfield or out lease grain crops in areas where these birds are known to occur. Eliminate roost sites near the flight line. Selectively prune or remove roost trees, brush, or cattails if blackbirds and starlings are roosting on base. Blackbirds and starlings respond well to an intense frightening program using bioacoustics and pyrotechnics. Use other methods to supplement this program as necessary. Starlings are not federally protected and may be killed without permits. Permits are required for other species. Occasional shooting of birds will reinforce other frightening techniques. Consider poisoning or trapping, with US Fish and Wildlife Service assistance. If these birds occur in hangars, use toxic bird perches to eliminate the problem. Avoid at all costs flying near known blackbird and starling roosts, especially at sunrise and sunset and during spring and fall migration. Huge roosting colonies may also be present during winter months in southern states.

4.3. Other Wildlife. While concern is mostly centered on birds, several mammalian and reptile species also pose threats to flight operations and must be considered. Close coordination with the Wildlife Management is necessary to reduce this type of hazard.

4.3.1. Rodents. These animals attract raptors. Control by maintaining a uniform turf at proper heights. Rodenticides may be used in some cases.

4.3.2. Alligators/Caiman. Large alligators and Caiman are often reported on the airfield. They usually occur after heavy rains. The 482 FW will work with Pesky Miami-Dade contractor licensed to deal with large reptiles. No other HARB agency should attempt any type of handling.

4.3.3. Turtles. Occasionally, large soft- shell turtles are reported on the airfield. If they are on the taxiways/runway, remove them and place them a good distance from the hard surfaces.

Chapter 5

REPORTS AND FORMS

5.1. Reports and Forms. This Chapter outlines the procedures and forms required to report bird strikes IAW AFP 91-212 and AFI 91-204 to enhance the BASH program at HARB.

5.1.1. All bird strikes (damaging and non-damaging) are sent to the USAF BASH Team. Report damaging and non-damaging strikes to installation-owned aircraft as they occur on AF Form 853, *Air Force Bird Strike Report*. The AF Forms 853 will be logged into the AFSAS system by the Flight Safety Officer or the BASH contractor. **https://sas.kirtland.af.mil/.** Obtain additional information on bird hazard reduction from AFPAM 91-212, *Bird Aircraft Strike Hazard (BASH) Management Techniques*, and BASH management responsibilities in AFI 91-202 for additional information on BASH requirements.

5.2. Installation flight safety officers. Installation flight safety officers must report all strikes to installation-owned Air Force aircraft regardless of the geographic location of the strikes. For strikes occurring at airfields other than HARB, the 482 FW Flight Safety Officer will log the original report in the AFSAS database and send a copy to the flight safety office of the installation at which the strike occurred (including non-Air Force airfields).

5.3. Bird Remains Identification: Mail any salvaged bird strike non-fleshy remains to:

Figure 5.1. Smithsonian Institution Natural History Building.

Smithsonian Institution, Natural History Building
Division of Birds: ATTN: Carla Dove
P.O. Box 37012, E610, MRC 116
10th and Constitution Ave NW
Washington, D.C. 20013-7012
(202) 357-2334

Chapter 6

OPERATIONAL PROCEDURES

6.1. Pilot Actions: The 482 FW has Operationally Risk Assessed its flying procedures and modified flying operations to reflect current worldwide mission requirements and decrease pilot and aircraft exposure to the majority of the threat. These actions should greatly decrease the potential for a Bird strike mishap. The following pilot actions will be followed by 482 FW pilots under BWCs SEVERE, MODERATE or LOW:

6.1.1. SEVERE: No takeoffs or landings will be permitted for 482 FW aircraft into an airport that is under BWC SEVERE, unless the 482 OG/CC or his designated representative grants approval for operational reasons. 482 FW aircraft already airborne and operating over Air to Ground ranges will remain above 3000 feet Above Ground Level (AGL) to include diving delivery recoveries. 482 FW aircraft that declare an in flight emergency can operate as necessary to safely land the aircraft.

6.1.2. MODERATE: Takeoffs are permitted for 482 FW aircraft. On recovery only a single approach or overhead to a full stop landing is allowed. No pattern work is allowed without approval from the 482 OG/CC or his designated representative. During Air to Ground training plan bomb release altitudes above 3000' AGL for all bomb deliveries with momentary deviations below 3000' AGL allowed during recovery from the dive only. The **exception** to this is when accomplishing RAP tasking events and updating currencies while working on Bravo and Charlie ranges under the control of the Avon Park RCO. Familiarization (FAM) events, Mission Qualification Training (MQT) and Initial Qualification Training (IQT) must be risk assessed and approved by the 482 FW/OG.

6.1.3. LOW: All normal operations are allowed for 482 FW aircraft. Plan all deliveries above 3000' AGL **except** when operating on Avon Park Range in Bravo and Charlie range patterns. On those ranges the aircraft may descend to Low Altitude Event minimums during bombing and strafe passes while working with the Avon Park RCO. For clarification, aircraft working on the Northern or Southern Tactical Ranges, and all other parts of the range must remain above 3000' AGL, (except for dive recovery) even when under control of a ground forward air controller such as a visiting JTAC, TACP, or an ALO.

6.1.4. Communications: Disseminate bird watch conditions by the following means. During periods of flight operations at HARB, or in low-level routes/training areas, etc, include bird watch conditions other than LOW in the ATIS information. Upon receipt of a bird watch condition other than LOW the tower controllers notify base operations of the new status and base operations notifies the command post. The Command Post will notify Wing Safety, and the 93FS. Base operations also ensure bird watch information is posted at the flight data counter for Transient Aircrews.

6.2. Low Level Routes: Low levels are no longer flown locally by 482 FW aircraft, except for incentive flights flown on IR 53 (over the water). The following information will be followed by visiting aircraft or if wing policy changes and the need to fly low levels arise. If the US Bird Avoidance Model Program (BAM) located at **www.usahas.com/bam**/ is reporting MODERATE or above, low levels routes will not be flown. Additionally, low level routes will

normally not be scheduled during the October-March time frame. In either case, the 482 FW OG/CC can waive this for MODERATE depending on mission requirements.

6.2.1. BWC SEVERE. High bird population on/above or in the vicinity of the active runway or intended areas of flight that represents a high potential for strike. Supervisors and aircrews must thoroughly evaluate mission needs before conducting operations in areas under condition SEVERE.

6.2.2. BWC MODERATE. Bird activity in locations, which poses an increased potential for strike. This condition requires higher vigilance by all agencies and supervisors, and caution by aircrews.

6.2.3. BWC LOW. Normal bird activity in the area of flight with a low probability of hazard.

6.3. Declaring Authority:

6.3.1. During HARB flying periods: Authority to declare bird watch conditions is vested with the SOF during normal flight operations. The SOF considers inputs from all sources listed below, but the Bird Hazard Condition declaration, responsibility, and authority rests with the SOF.

6.3.2. During periods of 482 FW non-flying operations: The Chief of Airfield Management or their designee is the declaring authority. The normal designee is the base biologist. See section 3.8 and 3.9.

6.3.2.1. The authority will declare conditions based on ground observations, pilot reports, radar observations, the US Bird Avoidance Model (BAM) internet site located at **www.usahas.com/bam/** or inputs from other HARB personnel with knowledge of the BASH program.

6.3.2.2. Recommendations should be made to tower personnel over UHF, VHF, or FM radio nets or through the telephone.

6.3.3. Avon Park Range (R2901): The RCO has the overriding authority to declare BWCs for the AUX Field, Charlie and Foxtrot ranges due to his proximity to the sites.

6.3.4. Low Levels: **Low levels are no longer flown locally by 482 FW aircraft, except for incentive flights flown on IR 53 (over the water). The following information will be followed if wing policy changes and the need to fly low levels arise.** If Avon Park Range is calling the range MODERATE or SEVERE, low levels will not be flown. Additionally, low levels will normally not be scheduled during the October-March time frame. In either case, the 482 Opertions Group (OG)can waive this for MODERATE depending on mission requirements.

6.4. Over water Air to Air Airspace: Normally birds do not affect the over water airspace. The areas used by the 482 FW are a significant distance away from land and any birds in the area are low flying types. Pilots are allowed to descend to their event minimums in these areas. If the flight lead assesses the area to be bird moderate or higher for an unusual circumstance the flight will use 3000’ AGL as a minimum for operations.

6.5. Pilot Responsibilities and Procedures: If a pilot observes or encounters any bird activity while in flight, which could constitute a hazard, the pilot should contact the Supervisor of Flying

(SOF), Control Tower, or Range Operations and request that the observed bird activity is passed to the SOF or Base Operations, as appropriate. The following information is necessary:

6.5.1. K - Call -sign

6.5.2. K - Location/Altitude

6.5.3. K - Time of sighting

6.5.4. K - Type of bird (if known)

6.5.5. K - Approximate number of birds

6.5.6. K - Behavior of birds (soaring, flying to or from a location etc.)

6.6. Pilot Actions: The 482 FW has Operationally Risk Assessed its flying procedures and modified flying operations to reflect current worldwide mission requirements and decrease pilot and aircraft exposure to the majority of the threat. These actions should greatly decrease the potential for a Bird strike mishap. The following pilot actions will be followed by 482 FW pilots under BWCs SEVERE, MODERATE or LOW:

6.6.1. SEVERE: Remain above 3000 feet AGL to include dive delivery recoveries.

6.6.2. MODERATE: Plan bomb release altitudes above 3000' AGL for all bomb deliveries with deviations below 3000' AGL during recovery from the dive only. The only **exception** to this is when accomplishing RAP tasking events and updating currencies while working on Bravo and Charlie ranges under the control of the Avon Park RCO. FAM events, MQT and IQT must be risk assessed and approved by the 482 FW/OG.

6.6.3. LOW: Plan all deliveries above 3000' AGL **except** when operating in Bravo and Charlie range patterns. On those ranges the aircraft may descend to Low Altitude Event minimums during bombing and strafe passes while working with the Avon Park Range Control Officer (RCO). For clarification, aircraft working on the Northern or Southern Tactical Ranges, and all other parts of the range must remain above 3000' AGL, (except for dive recovery) even when under control of a ground forward air controller such as a visiting Enlisted Terminal Attack Controller (ETAC), Tactical Air Control Party (TACP), or an Air Liaison Officer (ALO).

6.6.4. Communications: Disseminate bird watch conditions by the following means. During periods of flight operations at HARB, or in low-level routes/training areas, etc, include bird watch conditions other than LOW in the ATIS information. Upon receipt of a bird watch condition other than LOW the tower controllers notify base operations of the new status and base operations notifies the command post. The Command Post will notify Wing Safety, and the 93 FS. Base operations also ensure bird watch information is posted at the flight data counter for Transient Aircrews.

6.7. Low Level Routes: Low levels are no longer flown locally by 482 FW aircraft, except for incentive flights flown on IR 53 (over the water). The following information will be followed by visiting aircraft or if wing policy changes and the need to fly low levels arise. If Avon Park Range is reporting the range MODERATE or above, low levels routes will not be flown. Additionally, low level routes will normally not be scheduled during the October-March time frame. In either case, the 482 FW OG/CC can waive this for MODERATE depending on mission requirements.

6.8. 482 FW Off-Station BWC Procedures. 482 FW Off-Station BWC Procedures for Transit of Civilian/Military Airfields That Do Not.

6.8.1. Report Bird Watch Conditions: The following procedures will be followed by 482 FW pilots while in transit to, or operating at off-station airports (Civ or Mil) that do not report BWCs. Pilots will aggressively seek to obtain the expected bird activity at destination airport or enroute airports. Specifically, during mission planning, reference the Notice to Airman (NOTAMS), Instrument Flight Rules (IFR) Supplement and FLIP AP1, for information on bird activity/BASH procedures (and/or contact the destination airport by phone). Additionally, the US Bird Avoidance Model Program (BAM) is located at **www.usahas.com/bam**/. The BAM program allows the user to get bird activity trend data for the intended area of flight. Airborne monitor the intended destinations ATIS, and contact the airport's base operations and/or Air Traffic Control for bird advisories.

6.9. Detachment 1, 125 FW BWC Procedures:

6.9.1. BWC SEVERE: Cancel local flying unless mission essential. Detachment Commander or 125th Operations Group/Commander (125 OG/CC) approval is required to fly. Airborne aircraft will hold until BWC condition improves or fuel condition requires recovery via a single ship, full stop landing. The Alert force will be placed on "mandatory scramble" status. Note: Mandatory scramble status requires Southeast Air Defense Sector Director of Operations (DO) approval to personally approve scramble. Aircrew risk assessment re-evaluation is required.

6.9.2. BWC MODERATE: Restrict operations to single ship takeoff and recovery. No low approaches or formation takeoffs permitted. Avoid bird concentrations during departure and recovery. Aircrew risk assessment re-evaluation is required.

6.10. Department of Homeland Security Customs and Border Protection. Department of Homeland Security Customs and Border Protection, Miami Air and Marine Branch BWC Procedures:

6.10.1. BWC SEVERE: Only mission essential flights will be conducted. Operations during MODERATE or SEVERE will be conducted only with the specific authorization of the Air and Marine Branch Duty Officer. Aircrew risk assessment re-evaluation is required.

6.10.2. BWC MODERATE: Normal departures and recoveries will be conducted. Local flying will be restricted unless specifically authorized by the Command Duty Officer. Aircrew risk assessment re-evaluation is required.

6.10.3. Receipt of BWC is advisory in nature only through the ATIS message. Flight operations will be conducted at the discretion of the USCS IAW USCS Aviation Operations handbook and applicable Federal Aviation Administration (FAA) Regulations.

6.11. Civilian Aviation BWC Procedures: Civilian traffic utilizing HARB will be governed by FAA Regulations. BWCs will be advisory in nature to Civilian traffic. The pilot in command of the aircraft is directly responsible for and is the final authority for the operations of their aircraft.

DONALD R. LINDBERG, Colonel, USAFR
Commander, 482d Fighter Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 91-2, *Safety Program,* 28 September 1993

AFI 33-332, *Privacy Act Program,* 29 January 2004

AFI 91-202, *The USAF Mishap Prevention Program,* 1 August 1998

AFI 91-204, *Safety Investigations and Reports* 14 February 2006

AFP 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques,* 1 February 2004

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AF—Air Force

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFP—Air Force Pamphlet

AFPD—Air Force Policy Directive

AFRIMS—Air Force Records Information Management System

AFSAS—Air Force Safety Automated System

AHAS—Avian Hazard Advisory System

AGL—Above Ground Level

ALO—Air Liaison Officer

AUX—Auxiliary

ATC—Air Traffic Control

AUX—Auxiliary

BAM—Bird Avoidance Model

BASH—Bird/Wildlife Aircraft Strike Hazard

BHWG—Bird Hazard Working Group

BWC—Bird Watch Condition

DO—Director of Operations

ESOH—Environmental Safety and Occupational Health

ETAC—Enlisted Terminal Attack Controller

FAA—Federal Aviation Administration

FAM—Familiarization

FCIF—Flight Crew Information File

FS—Fighter Squadron

FW—Fighter Wing

HARB—Homestead Air Reserve Base

IQT—Initial Qualification Training

IAW—In Accordance With

IFR—Instrument Flight Rules

M-DCLF—Miami Dade County Landfill

MQT—Mission Qualification Training

NOTAMS—Notice to Airmen

OG—Operations Group

OPR—Office of Primary Responsibility

ORM—Operational Resource Management

RCO—Range Control Officer

RDS—Records Disposition Schedule

SOF—Supervisor of Flying

TACP—Tactical Air Control Party

USAFR—United States Air Force Reserve

USDA—U.S. Department of Agriculture